Professor Smith was a firm believer in scientific societies and himself belonged to many, including the Brooklyn Entomological Society, of whose journals, "The Bulletin of the Brooklyn Entomological Society" and "Entomologica Americana," he was editor from 1882 to 1890; Newark Entomological Society of which he was an honorary member, Feldman Collecting Social, Entomological Society of Ontario, Entomological Society of America, Association of Economic Entomologists, Society for the promotion of Agricultural Science, Brooklyn Institute, Washington Academy, New Jersey State Microscopical Society, Ottawa Field-Naturalists' Club, etc. He was a fellow of the American Association for the Advancement of Science and of the New York Academy of Sciences, and a corresponding member of the American Entomological Society (elected June 28, 1897). In most of these societies he was an active member, and frequently served in the capacities of president and secretary at one time or another.

In recognition of his high attainments as a scientist, the honorary degree of doctor of science was conferred upon him by Rutgers College in 1891.

To all who knew him he was ever the same jovial, good natured man, always willing to help where assistance was needed. He will be greatly missed not only by his many friends and scientific associates to whom he had endeared himself, but by scientific workers throughout the country.

He is survived by a widow and two grown up children.

John A. Grossbeck.

The Dragonfly Argia moesta and a new species (Odonata).

By E. B. Williamson, Bluffton, Indiana.

Agrion moestum and *putridum,* as described by Hagen, have some slight differences in color and size only to distinguish them. In *Synopsis des Agrionines, 5me légion, Argia putrida* is recognized as very closely related to *moesta,* and an added character, reduced venation, is mentioned as distinguishing *putrida.* At the same time a race (?) from Rock Island, Illinois, is mentioned which equals or slightly exceeds *moesta* in size. Calvert, in *A List and Bibliography of the Species* (*of Argia*), *Bull. Mus. Comp. Zool.,* 1902, lists *putrida* as a variety of *moesta.* The same opinion is expressed on page 76 of the *Biol. Cent. Am. Neur.*

In studying some material from Texas and Oklahoma, I have found it necessary to examine carefully the status of these two nominal species, and my conclusion is that, if two species exist, they must be defined in terms of other characters than those used in the past; and I am at present unable to detect any such characters. I have studied specimens from Texas, Oklahoma, Tennessee, Indiana, Ohio, District of Columbia, Pennsylvania, Maine, Michigan and Ontario.

Of these the palest male individual is from Ontario, which has about one-half the mesepisternum and less than one-half the mesepimeron dark colored. This individual has the abdomen black with pale on sides of 1, lateral apical spot on 2, and the customary narrow basal abdominal rings. It has the abdomen 33.5 mm., hind wing 25 mm. The darkest male individual is from Wister, Oklahoma, in which the entire thorax is dark, with a narrow pale antehumeral stripe, not reaching the antealar sinus, and a narrow, abbreviated streak on the metepisternum. This specimen has the abdomen black, with the basal annulations present but dark. Abdomen measures 32.5 mm., hind wing 25 mm.

To facilitate a comparison of thoracic pattern of males the following five types of pattern may be defined and designated by Roman numerals:

I, mesepisternum one-half black, mesepimeron with black in a broken pattern occupying less than one-half the area, metepisternum and metepimeron without black, with the exception of a line, present or absent, on the sutures.

II, mesepisternum one-half black, mesepimeron black excepting a narrow anterior stripe above and a narrow posterior stripe below, metepisternum and metepimeron without black.

III, mesepisternum two-thirds black, pale area not reaching antealar sinus, mesepimeron as in II, with pale slightly reduced, metepisternum and metepimeron pale as in II, but a distinct line on second lateral suture.

IV, mesepisternum two-thirds black, but pale area reaching the antealar sinus, mesepimeron as in III, but posterior ventral pale area reduced to a spot, metepisternum black below and narrowly along second lateral suture, metepimeron black, pale above in a sinuate pattern.

V, thorax all black, but a narrow pale antehumeral stripe not reaching the antealar sinus, and a narrow, abbreviated streak on the metepisternum near its middle, just posterior to the first lateral suture.

In the tabulation which follows, these numerals, followed by + or — mean respectively that the thorax is slightly darker or lighter than the number indicates.

MALES ONLY.

Locality.	Color of Thorax.	Length of Abdomen		Length of Hindwing	
		Extremes	Average	Extremes	Average
Texas . . .	IV+, IV+, IV—.	32–36	33.6	25–28	26
Oklahoma .	V, V—, V—, IV, V—, IV—, V—	30–33	32	23–25	24
Tennessee .	IV+, IV+, IV+		32		24.5
Indiana . .	II+, IV+, IV+, IV+, II, IV, IV+, II	30–34	31.7	23–25	24
Ohio	II		32		25
Pennsylvania	III, III, V—, IV+, III, III, III.	27–34	32	22–27	25
Maine . . .	III, III		30		24
Ontario . .	I+		33.5		25

In all the males studied the abdomen is black, with narrow basal rings on 2-7; in one specimen from Wister, Oklahoma, there is some pale color laterally on 1-5, and 9 and 10 have a little pale color laterally; in another male from Clifton, Texas, the pale color on 1-5 is faintly discernible; a male from Auburn, Indiana, has some gray on either side of 9 and 10; other males from Tennessee, Pennsylvania and Maine have the sides of 1 pale, and a more or less distinct lateral spot on 2.

Females from the same localities show fewer differences. Unless obscured, there is present a longitudinal, dorsal pale area, adjoining or near the black dorsal carina; a similar pale area occupies the mesepimeron in all but its most anterior and dorsal portions; and a similar large pale area occupies the metepimeron, excepting only a narrow border; along the second lateral suture on the metepisternum a narrow area of the same kind is less definitely developed. These pale areas give the impression of a thin coating of paraffin over the general body color. They seem to depend largely on post-mortem changes, and asymmetrical specimens are not rare. One female from Indiana is remarkable; the pale areas on the thorax are of usual size and definiteness, but instead of being surrounded by the usual light brown or pearly gray, the pale areas lie in a field of dark brown or nearly black; the result is a thoracic color pattern not at all suggestive of other individuals of either sex in which, if any dark color appears, it is in the usual pale areas of the normal females; in this case the pale areas remain pale, but the adjoining areas are dark. Two other Indiana specimens suggest this female. In two other Indiana females the thorax is light brown with green dorsal thoracic stripes of indefinite pattern, suggesting *Gynacantha*.

To describe the dorsum of the abdomen of *moesta* as pale colored is only partially correct. About segment 6 the lateral apical and basal black fail to connect in a continuous line as they do on the preceding segments, and the black decreases posteriorly and disappears before 9. If segment 3 or 4 be examined carefully it will be apparent that the dorsum of each segment above the lateral black streak is darker colored than the sides below the streak, and that the definition of the black and paler is obscure on the dorsal side of the streak; there is no well-defined longitudinal dorsal pale area, and the dorsum color (reddish brown) is a very different color from the pale basal rings of obscure bluish.

Females from various localities show the following sizes:

Locality	Length of Abdomen		Length of Hind Wing	
	Extremes	Average	Extremes	Average
Texas	31–34	32.5	26–29	27.5
Tennessee		31		26
Indiana	28.5–33	30.7	24–27	25 6
Pennsylvania	30–33	32	25–27	26
Maine	28–31	29.5		25
Michigan		31.5		26

It is possible that a more intelligent study of larger material may reveal that I have included more than one species in the above discussion, but for the present I am forced to conclude that *putrida* is a synonym of *moesta*. In all the material I have been unable to detect any differences in male abdominal appendages or female mesostigmal laminae.

Argia intruda n. sp.

Associated with the dark *moesta* at Wister, Oklahoma, are other Argias which seem to be specifically distinct from *moesta*, and which, after some correspondence with Dr. Calvert on the subject, I venture to describe as new.

Male. Abdomen 33-36, average 34.5, hind wing 25-26, average 25.3.

Female. Abdomen 33-37, average 33.8, hind wing 26-29, average 27.2.

Male. Head dull pale brown, rear of head black above, pale brown below.

Thorax pale brown, black as follows: A middorsal thoracic stripe, on either side occupying one-half the mesepisternum; a spot on the mesepimeron against the humeral suture where it meets the mesinfraepisternum, and another above against the first lateral suture just in front of (or below) the posterior border; a faint line on humeral suture, widened into a small spot above. This is the palest coloration represented and is shown by four specimens; in others the two spots on the mesepimeron grow towards each other till they form an oblique irregular stripe across the mesepimeron; from this stage this stripe grows in width posteriorly till it occupies nearly the entire area (pattern II, as described under *moesta*) ; this stage represents the maximum development of black on the thorax and is attained by only a single specimen.

Abdomen black above, pale below on the sides on all segments but 7, pale narrow blue basal rings on 3-7, a longitudinal middorsal stripe, absent or very reduced on 6-7; 9 and 10 variable, generally gray or light brown, excepting the lower lateral margins and ventrally, and a black lateral spot on either side, near the middle, of 9; this spot on 9 may be wanting or it may be developed into an elongated spot.

Abdominal appendages similar to *moesta* (see Fig. 29, Tab. 4, Biol. Centr. Am. Neur.), but the inferiors are longer than the superiors (not equal), and are terminated by a large, rounded, pale tubercle.

Female. Similar to the male. Black area on rear of head reduced to a spot on either side.

Darkest thoracic pattern: A black line on either side of the middorsal thoracic carina, originating just below the antealar sinus and reaching the mesostigmal lamina, separated from the black middorsal carina by pale area equal to the width of the black line, the dark line and the pale area next the carina together occupy less than one-half the area of the mesepisternum. This black area is developed in a pale area which is present on the mesepisternum as well as on the mesepimeron and metepimeron, as described for *moesta.* In other specimens the black dorsal lines on either side of the middorsal carina are reduced and in three specimens they are wanting altogether. No such lines are present in *moesta.* All specimens show more or less distinctly the pale areas above mentioned as present on females of *moesta.*

Abdomen darker than in any *moesta* examined, though, if the reddish brown of *moesta* be considered dark, *moesta* has a more extensive area dark colored, since in *moesta* there is no longitudinal middorsal pale area, while in *intruda* the dorsum is black (instead of reddish brown as in *moesta*), and there is a narrow but sharply defined and distinct pale longitudinal middorsal stripe, narrowest on 7, where it is reduced to the merest line. The lateral black is carried posteriorly on to 9, usually to its apex; 10 is pale colored. Sides of abdomen below the black, pale colored.

The mesostigmal lamina of *intruda* differs from *moesta* as follows: in *moesta* the posterior (or superior) lobe of the lamina is symmetrical with the border of the lamina on either side similarly curved, while the anterior (or inferior) border of the lamina is distinctly concave, the external angle of the lamina being correspondingly acute; in *intruda* the posterior (or superior) border of the lamina external to the lobe is straighter or less curved than internal to the lobe, resulting in an asymmetrical lobe, and the anterior (or inferior) border is straight or slightly convex, resulting in a less acute external angle.

Wister, Oklahoma, August 2 and 4, 1907; 15 males, 17 females, Frank Collins; all in collection of E. B. Williamson. When this material was studied and the differences detected, specimens were sent to Dr. Calvert for his opinion. He kindly separated the appendages of several males and returned these specimens to me. In his opinion they are specifically distinct from the material which we identify as *moesta* and *putrida,* and it is at his suggestion that I have described them as new.

The material on which the preceding study is based is in my collection and is as follows:

Argia moesta.

Texas—Bay City, May 24, 1907, 2 males, 1 female, E. B. W.
  Clifton, May 28, June 1, 1907, 16 males, 9 females, E. B. W.
Oklahoma—Wister, June 3, 1907, 1 male, E. B. W.; August 2 and 4, 1907, 6 males, Frank Collins.
Tennessee—Nashville, Cumberland River, September 29 and October 5, 1900, and June 1, 1901, 3 males, 1 female, E. B. W.
Indiana—Saint Paul, August 13, 1911, 11 males, 5 females, E. B. W.
  Bluffton, without data, 2 males; July 10, 1900, 1 male; July 27, 1902, male, female; August 9, 1903, 1 male; July 16, 1905, 3 males, 2 females; July 22, 1906, 1 male; August 1, 1909, male, female; June 8, 1911, male, female, E. B. W.
  Ft. Wayne, July 17 and 18, 1901, 2 males, 4 females, E. B. W.
  James Lake, July 5, 1908, 1 male, E. B. W.
  Auburn, July 7, 1911, 1 male, E. B. W.
Ohio—Kent, June 21, 1900, 1 male, J. S. Hine.
District of Columbia—July 18, 1897, 1 male, J. S. Hine.
Pennsylvania—Fayette County, July 2, 1899, 1 male, E. B. W.
  Ohio Pyle, June 24, 1900, 2 males, 1 female, E. B. W.; September 8, 1901, 5 males, 3 females, J. L. Graf.
Maine—7 males, 8 females, F. L. Harvey.
Michigan—Emmett County, August 11, 1907, 1 female, L. A. Williamson.
Ontario—Go Home Bay, July 12, 1907, 1 male, E. M. Walker.

Argia intruda.

Oklahoma—Wister, August 2 and 4, 1907, 15 males, 17 females, Frank Collins.

All specimens studied have, I believe, a nature color pattern which would not have varied with increasing age, though I do not know how early in the life of the imago this pattern is attained, since I have no teneral material before me, and I have no notes on the colors of recently emerged imagoes. Thoracic pruinescence appears first ventrally, occupying the bases of the legs and the metepimeron, then the pale areas of the thorax, and finally, in older individuals, including the entire thorax and obscuring the thoracic pattern. It can be removed by gentle rubbing or scraping. Pruinescence of the apical abdominal segments appears later in the life of the imago than the first traces of thoracic pruinescence. These two species of *Argia* begin to show thoracic pruinescence earlier in imaginal life than any other dragonflies known to me.

Observations on the Lepidoptera of St. Louis, Missouri, and vicinity during 1911.

By the Members of the St. Louis Entomological Club.

Compiled by AUGUST KNETZLER.

The opening of the season, being quickly followed by hot weather and a protracted drouth, brought out some unexpected features, the most striking of which was the wonderful abundance of the entire *Colias* family and the scarcity of Papilios. Particularly surprising was the appearance in large numbers of *Dione vanillae,* specimens of which could be seen daily on the city streets from August till November. The larvae of this beautiful insect were found feeding on *Passiflora* in several gardens. No less remarkable was the first appearance here of the fine large Hesperid, *Calpodes ethlius,* of which not only were there several fine specimens taken, but the larvae also were discovered feeding on Canna by Mr. Ernst Schwarz, who bred several with good results, the imagoes emerging even after our first heavy frost. Another new Hesperid, male and female, not yet determined, was taken by Mr. Paul Schroers.